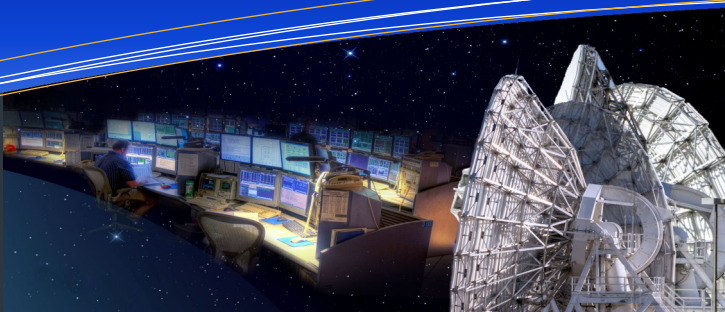
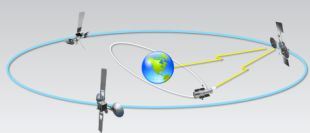


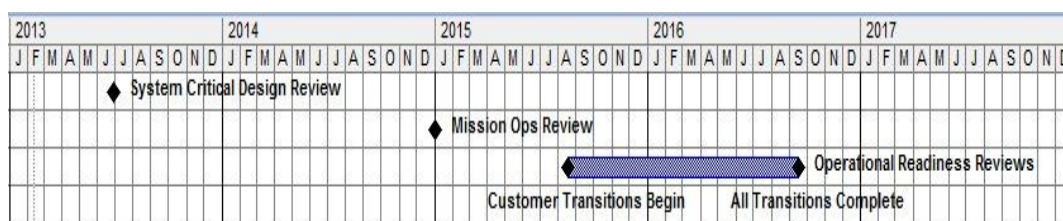
SGSS Goals and Objectives

- Reduce communication costs for our customers
- Implement an extensible, flexible, and scalable ground terminal architecture
- Continue to provide existing Space Network functionality
- Reduce lifecycle costs
- Enhance the continuity of operations posture of the Space Network
- Transition from the legacy system to the new SGSS system in a low risk environment
- Meet or exceed the legacy proficiency, performance, and availability requirements



Customer Forum P.4

The SGSS Project successfully completed Fleet and Ground Management (FGM) Tracking Telemetry and Command (TT&C) and Digital Signal Processing (DSP) Element Critical Design Reviews (ECDRs). ECDRs will continue through April 2013 and will culminate in the System Critical Design Review (SCDR) in late June 2013.



Major SGSS Project Milestones

The SGSS Project began meeting individually with customers to work on interface details and develop the customer Interface Control Documents (ICDs). Meetings were conducted with Swift and Fermi. Initial meetings with all existing customers will continue through Spring/Summer 2013.

SGSS held the first SGSS/Space Network Management Interchange Meeting (SSMIM) in Nov 2012. The SSMIM is an informal meeting that serves as a forum to facilitate the cooperative management of the SN and SGSS activities needed to effectively and efficiently establish a new SN Ground Segment.

Developing Customer ICDs

As SGSS marches towards the SCDR, customer interfaces continue to be refined. The SGSS Project will continue to engage with customers to finalize the interface definitions. SGSS has developed a structure for the customer ICDs that facilitates future updates.

The Mission Operations Center (MOC) ICD will include an appendix for each SGSS customer with customer specific information. Meetings with each customer will be utilized to review the ICD and appendices and ensure that the interfaces are properly defined.

SGSS Q&A

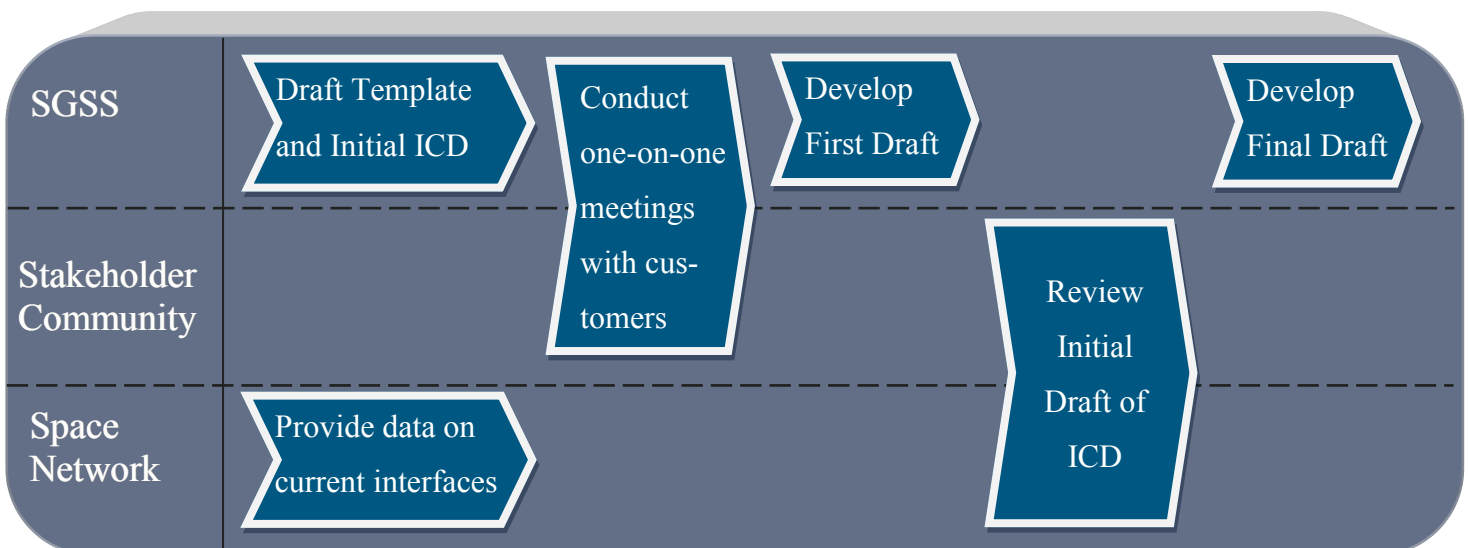
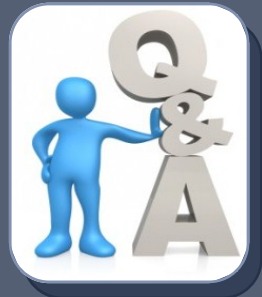
Q: After the ICDs are base-lined, how are changes implemented?

A: Changes to ICDs initiated by the project office will follow the standard SGSS CCR process.

Changes initiated by the implementation contractor will follow the contractor's standard change process and will be submitted for review/approval to the project office. The project office will communicate the changes with major impact to respective organizations and seek concurrence.

Changes requested by the customer will go through the SGSS project office.

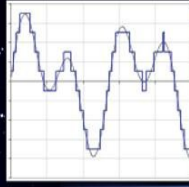
ICDs will be updated at each major milestone of the project and will be circulated through the relevant organizations for re-concurrence of any changes.



New SGSS Capabilities



Upgrades made by SGSS will allow for improved customer service management. New scheduling engine software will be deployed allowing for streamlined scheduling, access to new capabilities and improved insight into available resources for customers.



Converting analog signals to digital, packetized data allows the use of 'publish and subscribe' services over internal networks instead of hardwired point-to-point connections. Digital signals over networks do not suffer from signal loss, distortion or other degradations and can be replicated without limit.



An improved enterprise infrastructure using extensive virtual machines will allow for higher availability and operating system independence. Networking services within and between ground terminals make the ground terminals appear as one, unified system. The terminals will use 10 Gb LANs, high-speed digital switches and enterprise messaging. SGSS will also take steps to improve IT security including updating the equipment used to encrypt and decrypt TDRS telemetry and command data.

Digital Signal Processing (DSP)

- Ability to easily add future waveforms
- Early signal digitization for lossless distribution
- High speed packet switching
- New coding schemes: LDPC encoding/decoding ($R \frac{1}{2}$, $7/8$), Rate $7/8$ Turbo Product Codes, Modulo-4 differential decoding
- 8-Phase Shift Key (PSK) Modulation
- Ka one way tracking services
- Data Rate Increases – 50 Mbps Forward, >1 Gbps Ka Return, 600 Mbps Ku Return

Maintenance & Training (MT)

- System Modeling
- Development, test and training environments
- Enhanced TDRS simulators
- Simplified maintenance

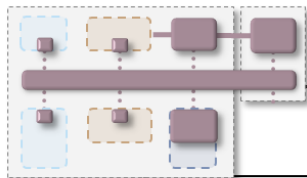
The MT element is not part of the operational system.

Fleet & Ground Mgmt (FGM)

- Automation level control
- TDRS and ground segment coordinated commanding
- Remote TDRS telemetry access
- Enhanced situational awareness for ground terminal operators

Space-Ground Link (SGL)

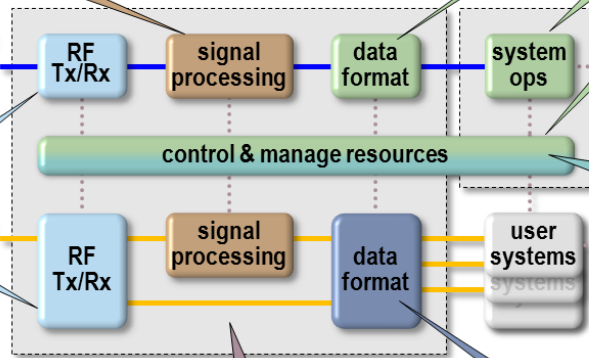
- Addition of S-Band capability to the WSGT main mission antennas
- Radial combining technology
- Back-end switching of equipment to any antenna



EI provides processing and networking, supporting and connecting the other elements

Enterprise Infrastructure (EI)

- Service Oriented Architecture
- IP v6
- Compliance with new security standards
- Extensive use of Virtual Machines (VMs)



Service Management (SM)

- Service Optimization
- New scheduling interfaces – CCSDS SM, Web based and others
- Service Monitor and Control
- Service Accounting

User Services Gateway (USG)

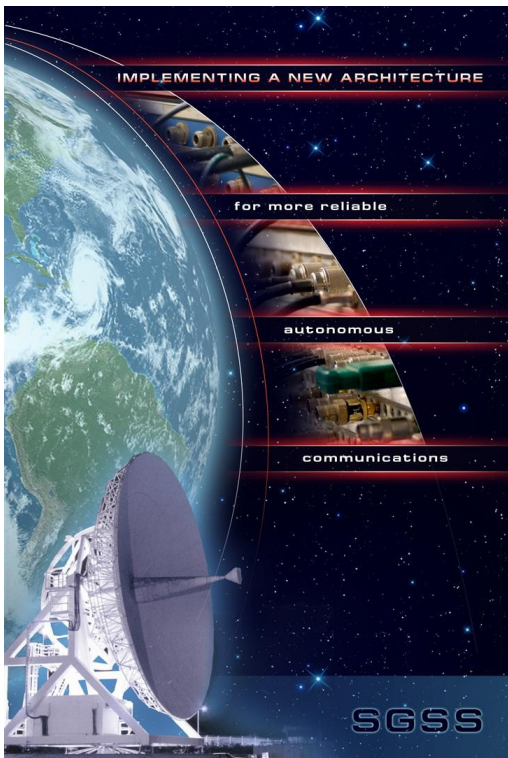
- CCSDS Advanced Orbiting System (AOS) / encapsulation
- Rate Buffering
- Space Link Extension (SLE) Services

SGSS Project Supports GSFC's Commitment to Knowledge Management

The SGSS Project conducted a post-PDR Pause and Learn (PaL) session with a facilitator from the Goddard Office of the Chief Knowledge Officer (OCKO). PaL sessions are used to take a step back and conduct an informal, honest evaluation of the successes and failures experienced by the project. Conversation maps from the PaL session were created by the OCKO and distilled by SGSS into actionable recommendations for future efforts. As SGSS approaches the integration & test and deployment & transition phases of the Project, special attention is being paid to lessons learned from previous SN upgrade efforts. The SGSS Project will continue to conduct PaL sessions after each key milestone is reached.

The SGSS Lessons Learned and the PaL conversation maps are available upon request. More information about knowledge management is available at www.nasa.gov/goddard/ocko/

Rolling FAQs



Q: Will SGSS be replaced as part of the SCaN integrated network?

A: No. SGSS is first step toward the SCaN integrated network. Its architecture will form the basis that will be built upon to establish the integrated network.

Q: Will SGSS change customer interfaces or operations?

A: The interfaces will be the same, however due to the different architecture, terminology and procedures will change (e.g., position descriptions). The new Service Management web portal will be needed to use the new features and capabilities of SGSS.

Question: What do you like the best about working on SGSS?

Coming back to the Networks and working with old friends, such as Tom Gitlin, David Jacintho, etc.

What are the challenges facing SGSS?

A demanding schedule to complete detailed design and integration & test.

Get to know...



Kevin McCarthy, DPM

Customer Forum Survey Results

The SGSS Project thanks everyone who participated in our online survey of Customer Forum #2! Your inputs help us to continually improve the relevance and effectiveness of our customer communications and ensure that Customer Forum #3 will be even more successful. Some key results from the survey include:

- Overall 'very good' rating for customer forum experience
- More detailed schedule and ICD process will be presented at Customer Forum #3

SGSS Customer Forum #3 Update

The SGSS Customer Forum #3 will be held in Summer 2013. We would like to continue to present useful information to our stakeholders. To suggest topics, please contact Tom Gitlin (thomas.a.gitlin@nasa.gov).

SGSS Project Contact Information

Website: <http://esc.gsfc.nasa.gov/space-communications/sgss.html>

SGSS Project Manager:
Roger Clason
roger.n.clason@nasa.gov

SGSS Deputy Project Manager:
Kevin McCarthy
kevin.p.mccarthy@nasa.gov

SGSS Newsletter Editor:
Avi Edery
edery_avi@bah.com

Like the Newsletter? Can it be improved? Please send comments via email: sgss-newsletter-suggestions@lists.nasa.gov